

Irritable Bowel Syndrome

Irritable bowel syndrome (IBS) is one of the most common gastrointestinal disorders in the United States. People suffering from IBS experience altered bowel habits, frequently suffering from constipation, diarrhea, or alternating episodes of both. However, their intestines contain no structural or pathologic abnormalities. Although IBS is extremely common, it is poorly understood.

There is no test that can diagnose IBS. And, because the symptoms of IBS occur with so many diseases, a long list of conditions must be ruled out before IBS can be diagnosed. It is important to note that IBS is not an inflammatory bowel disease, such as Crohn's disease and ulcerative colitis. These conditions are characterized by inflammation in the lower digestive tract, including the colon and (in Crohn's) the small intestine. IBS produces no pronounced inflammation and no outward signs that anything is wrong.

So far, the causes of IBS remain a mystery. The disease tends to strike almost exclusively among adults, and it is more common among women than men. A number of explanations have been proposed, including hypersensitivity and increased motor reactivity in the large intestine, often triggered by diet and stress. This affects the movement of stool and gas through the colon, resulting in constipation, diarrhea, or both. IBS flare-ups can be triggered by a number of factors, including specific foods, allergies, diet, and stress. In fact, IBS is associated with sexual abuse and rape (Kasper DL et al 2005).

IBS also tends to occur with other pain disorders, such as fibromyalgia (49 percent of patients also have IBS), chronic fatigue syndrome (51 percent), chronic pelvic pain (50 percent), and temporomandibular joint dysfunction (64 percent) (Whitehead WE et al 2002).

Because IBS is so poorly understood, few drugs in the conventional armamentarium show consistent results. Instead, many patients are rotated among various drugs aimed at controlling their abnormal bowel habits and among antidepressants or medications that affect serotonin receptors. For most patients, however, these extraordinary steps are unnecessary, and the best therapy is natural, based on dietary supplements that encourage healthy digestion as well as lifestyle changes that have been proven to reduce symptoms and bring IBS under control.

POSSIBLE CAUSES OF IBS AND DIAGNOSIS

The most common symptoms of IBS include periodic bouts of abdominal pain accompanied by diarrhea, constipation, or both. Flatulence, belching, and bloating may also occur. The episodes may subside with a bowel movement. However, IBS patients may pass only a small amount of stool that may or may not contain mucus, and they may continue to feel an urgent need to defecate (Bodemar C et al 2001; Chey WY et al 2001). IBS is often divided into two major variants:

1. Diarrhea-predominant IBS: three to seven bowel movements per day; loose, watery stools; and fecal urgency. One or more of these symptoms must be present.
2. Constipation-predominant IBS: fewer than three bowel movements per week; hard or lumpy stools; and straining during bowel movements. One or more of these symptoms must be present.

People with IBS appear to have hypersensitive nerves within the large intestine. Under certain conditions (such as stress or consumption of certain foods), the normal passage of stool and gas may cause pain. Research has suggested that IBS patients have extra sensitive pain receptors in the gastrointestinal tract, which may be related to an abnormal level of serotonin, a neurotransmitter involved in regulating digestion and mood. Their level of serotonin may help explain why people with IBS are likely to be anxious or depressed (Kasper DL et al 2005).

Other significant factors implicated in IBS include recent infection within the gastrointestinal (GI) tract, which can disturb the digestive flora necessary to help break down remaining nutrients in the colon (De Schryver AM et al 2000; Talley NJ et al 2002). Research has shown that in rare cases, IBS has developed following *salmonella* or *Campylobacter pylori* infections.

The diagnosis of IBS is a diagnosis of exclusion, meaning that all other possible diseases must be ruled out before a physician arrives at the diagnosis of IBS. Typically, the diagnosis begins with a medical history, including questions about the duration, severity, and characteristics of symptoms. The physician will ask about diet, stress, any medications currently being taken, and changes in bowel function. Most people with IBS have mild symptoms.

Laboratory tests, including complete blood count, thyroid function, erythrocyte sedimentation rate, and urinalysis, may be done to rule out other potential causes. Depending on symptoms, additional testing may include a lactose tolerance test and a check for

the presence of blood, bacteria, and parasites in feces (NIDDK 2006).

The colon may be examined with flexible sigmoidoscopy or colonoscopy. If indicated, a biopsy from the colon can be performed. A colonoscopy is indicated when an individual is anemic or has lost weight or if polyps are found. However, in IBS the large intestine appears normal (NIDDK 2006; Lindor KD et al 2005)

A diagnosis of IBS may be made if patients have had abdominal pain or discomfort for at least 12 weeks, not necessarily consecutively, during the past year and if:

- The onset of pain corresponds to a change in the regularity of bowel movements
- The passage of stool relieves the pain
- The onset of pain corresponds to a change in the appearance of stool

RISK FACTORS AND TRIGGERS

Gender plays a clear role, as more than 80 percent of IBS patients are women, according to the American College of Gastroenterology. Age is also a factor; IBS usually begins during the late teens or early 20s.

Although the connection is still poorly understood, emotional stress is often a significant component of IBS (Delvaux M 2004). The intestinal wall is lined with layers of nerve cells that are connected to the brain. Even comparatively low levels of stress can cause intestinal muscles to spasm, which can lead to diarrhea or constipation. There is also evidence of disordered serotonin production among people with IBS, which may lead to their symptoms.

The types of food and the way a person eats can trigger or worsen IBS symptoms. The digestive system must work hard to break down large meals or meals eaten too quickly. Fatty food, fructose, artificial sweeteners (e.g., sorbitol), dairy products, chocolate, alcohol, and carbonated beverages can trigger or aggravate episodes.

Many people with IBS also suffer from reduced levels of nutrients, partly because people often forgo eating during flare-ups and partly because IBS affects the absorption of nutrients. A deficiency in one nutrient can cause a chain reaction and upset the balance of the entire body, leading to imbalances in other vitamins and minerals (NIDDK 2006). It is important that people with IBS maintain a healthy intake of nutrients, usually by supplementing with a good multivitamin.

NUTRITIONAL THERAPY

Nutritional and lifestyle choices have been proven to prevent or relieve episodes of IBS. Cutting out alcohol, caffeine, refined sugars, and fatty foods can significantly reduce symptoms. It is also important to remove known food allergens or irritants (Floch MH et al 2002). Many people have food sensitivities that aggravate IBS or trigger episodes. The most common food triggers include dairy products, all wheat products, corn, peanuts, citrus, soy, eggs, fish, and tomatoes. People with IBS should pay careful attention to when their condition is aggravated to determine if any particular food may be causing exacerbations. A low-fat diet may also help relieve abdominal pain following meals (NIDDK 2006).

Some people with IBS-like symptoms have celiac disease (gluten intolerance). Gluten is a protein found in wheat and grains. Gluten intolerance can be diagnosed using specific tests. A gluten-free diet is often prescribed. In celiac disease, food containing all forms of wheat (including durum, semolina, spelt, kamut, einkorn, and faro), rye, barley, and triticale must be avoided. Avoiding products containing oats should also be considered. Specialty substitute foods are available, including gluten-free bread, flour, and pasta (NIDDK 2006).

Other dietary recommendations include the following:

Fiber. Eating sufficient amounts of fiber can alleviate constipation, improve diarrhea, and prevent muscle spasms. Soluble and insoluble fiber can be found in the following foods:

- Whole-grain cereals and breads
- Fruits
- Vegetables
- Legumes (dried peas and beans)

Soluble fiber is fiber that dissolves in liquid. It draws in water during digestion and slows the rate of nutrient absorption. It can help relieve diarrhea and constipation. Insoluble fiber speeds digestion and can help alleviate constipation, but it can aggravate diarrhea.

Fiber should be introduced gradually into the diet.

Psyllium is a soluble fiber used primarily as a bulk-forming laxative. Psyllium also relieves constipation, IBS, hemorrhoids, and other intestinal problems. When psyllium husk comes into contact with water, it swells and forms a gelatinous mass that stimulates the transport of waste through the intestinal tract. Unlike wheat bran and some other fibers, psyllium generally does not cause excessive gas and bloating. Psyllium is effective in gently relieving symptoms of constipation and mild to moderate diarrhea and regulating stool frequency in people with IBS (Jalihal A et al 1990; Kumar A et al 1987; Tomas-Ridocci A et al 1992).

Peppermint and caraway oil. Peppermint, especially when combined with caraway oil, calms stomach muscles and improves the flow of bile, which digests fats. As a result, food passes through the stomach more quickly. The active ingredient of peppermint oil for this purpose is thought to be menthol. Enteric-coated peppermint capsules for treatment of IBS pain, bloating, gas, and diarrhea have been shown to be beneficial (Kline RM et al 2001; Logan AC et al 2002; Pittler MH et al 1998). Enteric-coated capsules keep the oil from being released in the stomach, which can lead to heartburn and indigestion.

Digestive enzymes. Digestive enzymes are substances designed to break down foods for digestion. A number of different digestive enzymes are found in raw fruits and vegetables. Some pancreatic enzymes are involved in the development of IBS (Terada T et al 1997). Digestive enzymes can promote good digestion and enhance nutrient absorption (Schneeman BO 2002).

L-glutamine. L-glutamine is the most common amino acid in the blood and is important in maintaining strength and boosting the immune system. Under normal circumstances, dietary intake and production of L-glutamine are sufficient. However, in times of stress or increased energy output, tissues need more L-glutamine than usual. A lack can lead to improper absorption of nutrients and a depressed immune system (Roth E et al 1996; van der Hulst RR et al 1996). Nutrition and intestinal function are intimately related; consequently, chronic GI diseases such as IBS often result in malnutrition. Glutamine has protective and reparative effects on the colon and bowel (Ziegler TR et al 2000).

Artichoke leaf. Artichoke has been shown to help relieve GI problems that result from an inability to adequately process fats, a result of poor bile secretion. Because it stimulates the liver to produce this important gastric "juice," artichoke can ease upset-stomach symptoms (e.g., nausea, bloating, abdominal pain, vomiting). Artichoke leaf is also reputed to relieve flatulence (Bundy R et al 2004).

Ginger. Ginger is antispasmodic, helps prevent vomiting, and improves intestinal muscle tone. It also has a mild anti-inflammatory action. Ginger is available in many forms. Preliminary studies indicate that ginger is effective in reducing IBS symptoms (Langmead L et al 2001; Saller R et al 2001).

Bromelain. Bromelain contains proteolytic enzymes (enzymes that digest protein) obtained from the stem of the pineapple plant. Bromelain is a popular natural supplement because it can counteract many symptoms of inflammation, including inflammation of the intestinal lining (Hale LP 2004). Bromelain is often used as a digestive aid. Because it is plant based, many vegetarians prefer it. When taken after meals, bromelain acts as a digestive enzyme. Pineapple fruit also has antioxidant properties (Moyle R et al 2005).

PREBIOTICS AND PROBIOTICS

The human intestines are inhabited by billions of beneficial bacteria. These bacteria, which are mostly located in the colon, aid in digestion by fermenting substances that were not digested in the small intestine (Saggiaro A 2004) and by breaking down any remaining nutrients.

Among people with IBS, the intestines suffer from alterations in the bacterial flora. Although the evidence is still emerging, researchers are looking at therapies that repopulate and normalize the population of intestinal flora with dietary supplements that provide a mixed supply of beneficial bacteria, or probiotic supplements. For example, the beneficial *bifido* and *lactobacilli* species have been shown to reduce low-grade inflammation in the gut and absorb bile acids, which may reduce the secretion of mucus in the colon and thus lower the risk of diarrhea (Camilleri M 2006).

So far, only a few randomized, double-blind human studies have been conducted on probiotics and IBS, but the early results have been encouraging. One trial assigned a group of 48 people to treatment with either a probiotic mixture twice daily or placebo. Patients received treatment for either four weeks or eight weeks. At the end of the entire treatment period, the use of probiotics was associated with reduced flatulence and slower colonic transit time (Kim HJ et al 2005). In another trial, 103 patients were enrolled in a double-blind, randomized, placebo-controlled trial. Patients received either one probiotic-containing capsule daily or placebo. At the end of the six-month study period, patients taking probiotics experienced a 42 percent reduction in overall symptoms, compared to a 6 percent reduction in the placebo group (Kajander K et al 2005).

The activity of probiotics is enhanced by the addition of prebiotics, or sugars on which the bacteria feed. Known as fructooligosaccharides, prebiotics promote the growth of beneficial bacteria (Sghir A et al 1998). They can be found in such foods as

CONVENTIONAL TREATMENT

Few medications can help people with IBS. Two drugs act as serotonin receptor antagonists and may be used for either diarrhea or constipation associated with IBS. The drugs affect serotonin receptors in the brain and act by stimulating or inhibiting muscle contractions in the intestines. They are prescribed only when other medications have failed, typically in more-serious cases of IBS. One type, a 5-HT₃ antagonist called Calmactin® (*cilansetron*), is used in cases of diarrhea-predominant IBS. A second type, a 5-HT₄ antagonist known as Zelnorm® (*tegaserod*), is a short-term treatment for constipation-predominant IBS.

More commonly, antispasmodics (such as Bentyl®, Levsin®, and Levsinex®) may be prescribed to relax the smooth muscles of the intestine, helping prevent or relieve painful spasms. They are taken 30 to 45 minutes before meals to relieve cramping that follows eating. Side effects may include drowsiness, dry mouth, blurred vision, and inability to urinate. Antispasmodics can make constipation worse and may best be used in combination with tricyclic antidepressants (Cremonini F et al 2004).

Antidepressants may be prescribed because IBS is often associated with mood disorders. However, the use of antidepressants remains controversial because some experts say it is difficult to determine whether depression exacerbates IBS or results from it. Sufficient evidence appears to support the use of low doses of antidepressants for alleviating pain (Spiller R 2002) in patients in whom other medications are insufficient and in those with IBS associated with mood disorders. The mechanisms of antidepressant drugs include luminal relaxation, blunting of colon hypersensitivity, and modulation of central nervous system pain-processing pathways (Hasler WL 2001).

Antidiarrheal agents (e.g., loperamide, diphenoxylate, and difenoxin) may be prescribed for diarrhea-predominant GI tract disorders (Alaradi O et al 2002). Loperamide has also been shown to stimulate intracellular calcium levels, although its exact functions are not clearly understood. Some antidiarrheals may be more helpful than others. Overall, physicians usually do not recommend long-term treatment with antidiarrheals.

LIFE EXTENSION FOUNDATION RECOMMENDATIONS

Emotional stress is linked to IBS attacks. Relaxation techniques such as biofeedback and meditation can help prevent episodes. Regular exercise helps keep the digestive tract active and healthy, especially in people prone to diarrhea. Regular sleep is important to maintaining overall health and reducing stress. Most patients with IBS would also benefit from a good multivitamin to ensure they are receiving adequate levels of vital nutrients.

People with constipation-predominant IBS should refer to the Constipation chapter in this book for specific recommendations. There are several natural therapies that can induce rapid peristalsis, resulting in complete evacuation of the bowels. One natural laxative therapy involves mixing several teaspoons of a powder that contains ascorbic acid, potassium, and magnesium powder into an 8-oz glass of water and drinking it on an empty stomach. Some people require a second 8-oz glass of water mixed with this buffered vitamin C powder. Rapid evacuation usually occurs within 60 minutes, although there may be a residual diarrhea effect.

It is also important that people with IBS strive to avoid possible triggers for their disease, especially foods that aggravate their condition. Finally, a number of nutrients may help improve gastrointestinal health and soothe symptoms:

- **Soluble fiber**—5 to 12 grams (g) supplemental fiber daily with meals to relieve constipation. Some people with constipation-predominant IBS have insufficient peristalsis and have difficulty eliminating fiber. Those who have insufficient peristalsis should consider the nutritional laxatives discussed in the Constipation chapter of this book.
- **Digestive enzymes**—400 milligrams (mg) of pancreatin 8x per serving, taken five minutes before the end of each meal. Digest RC, a multinutrient digestive aid that contains artichoke extract, can be taken five minutes before meals to facilitate digestion and transport food through the digestive tract.
- **L-glutamine**—1000 to 2000 mg daily with each meal
- **Probiotics**—at least 300 mg, taken with meals, containing *Bifidobacterium lactis*, *Lactobacillus acidophilus*, *Bifidobacterium longum*, *Lactobacillus paracasei* subsp. *paracasei*, and *Streptococcus thermophilus*
- **Fructooligosaccharides**—2 g daily
- **Bromelain**—30 to 60 mg or 250 to 500 gelatin digestible units
- **Artichoke leaf extract**—300 to 900 mg daily
- **Ginger extract**—250 mg daily

In addition, combination products are available that offer peppermint and caraway oil, artichoke leaf extract, and other soothing nutrients.

PRODUCT AVAILABILITY

All the nutrients and supplements discussed in this section are available through the Life Extension Foundation Buyers Club, Inc. For ordering information, call anytime toll-free 1-800-544-4440, or visit us online at www.LifeExtension.com.

The blood tests discussed in this section are available through Life Extension National Diagnostics, Inc. For ordering information, call anytime toll-free 1-800-208-3444, or visit us online at www.LifeExtension.com.

IRRITABLE BOWEL SYNDROME SAFETY CAVEATS

An aggressive program of dietary supplementation should not be launched without the supervision of a qualified physician. Several of the nutrients suggested in this protocol may have adverse effects. These include:

Artichoke

- Do not take artichokes if you have a bile duct blockage. Artichokes can stimulate the flow of bile.

Bromelain

- Consult your doctor before taking bromelain if you are taking anticoagulants or antithrombotic agents. Bromelain can thin the blood.
- Bromelain can cause gastrointestinal symptoms such as nausea and diarrhea.
- Bromelain can cause bleeding from the uterus between menstrual periods (metrorrhagia) and excessive uterine bleeding during menstruation (menorrhagia).

Fiber

- Take fiber supplements with a full 8-ounce glass of water.
- Drink eight 8-ounce glasses of water daily while taking fiber.

Ginger

- Do not take ginger if you have a bile duct obstruction or gallstones. Ginger may stimulate bile production.
- High doses of ginger (6 grams or more) can cause damage to the stomach lining and ulcers.
- Ginger can cause allergic skin reactions.
- Consult your doctor before taking ginger if you take blood thinners such as warfarin (Coumadin). Ginger can increase the risk of bleeding.

L-Glutamine

- Consult your doctor before taking L-glutamine if you have kidney failure or liver failure.
- L-glutamine can cause gastrointestinal symptoms such as nausea and diarrhea.

For more information see the Safety Appendix

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